

REMARKS**Summary of the Amendments**

By the foregoing amendment, claim 31 has been amended to include that the cell culture carriers are granular cell culture carriers; and claims 48, 50 and 49 have been amended to depend upon claim 51 so that they depend upon combination claim 51 instead of claim 31. Accordingly, claims 31-34, 36, 37 and 39-59 remain pending.

Any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Statement Of Telephone Interview

Applicants express appreciation for the courtesies extended by Examiner Singh during a telephone interview on February 14, 2008. During this telephone interview, Applicants' representative Arnold Turk questioned the restriction requirement set forth in the Office Action, especially in view of the Examiner's previous indication that the filing of a combination claim including cell culture carriers therein would be directed to the elected subject matter, and would be appropriately examined in a Request for Continued Examination. During the interview, it appeared that the Examiner would withdraw the restriction requirement if subcombination claim 31 was amended to include the term "granular" therein, but the Examiner did not make any commitment.

Restriction Requirement

Applicants note that claims 39-47 remain withdrawn from consideration by the Examiner as being directed to non-elected inventions, and claims 32-34, 36-37 and 48-59 are considered to be directed to an invention that is independent or distinct from the invention originally claimed.

As discussed with the Examiner during the above-noted telephone interview, by the amendment herein, Applicants have amended claim 31 to include "granular". Accordingly, the combination recited in claim 51 and the claims directly or indirectly dependent therefrom include the subject matter of the subcombination recited in claim 31. Therefore, restriction is not appropriate under the present circumstances.

Applicants note that the restriction requirement supports restriction between the two groups of invention based upon the assertion that the two groups of invention are related as combination and subcombination. The Examiner is reminded that to support a requirement for restriction between combination and subcombination claims, both two-way distinctness and reasons for insisting on restriction are necessary.

Moreover, where a combination as claimed sets forth the details of the subcombination as separately claimed, the subject matter is not properly restrictable, even if the subcombination has separate utility. Thus, where the claims are directed to a combination AB_{sp} and the subcombination B_{sp}, restriction is not proper because two way distinctness for examination purposes cannot be established.

Accordingly, withdrawal of the restriction requirement with respect to claims 32-34, 36-37 and 48-59 is respectfully requested.

Moreover, Applicants submit that withdrawn claims 39-47 should be rejoined with the elected subject matter, because the subject matter of independent claim 39 is presently included with the elected claims which include a combination as recited in independent claim 51.

RESPONSE TO REJECTIONS

Response to Rejections under 35 U.S.C. 103(a)

The Office Action rejects claim 31 under 35 U.S.C. 103(a) as being unpatentable over Starling (U.S. Pat. No. 6,210,715) or Kitano (U.S. Pat. No. 5,540,995), in view of Nilsson (GB 2,093,040A, published as WO 82/00660).

The Office Action submits that STARLING discloses, among other things, cell culture carriers to which cells are allowed to adhere to and grow on surfaces thereof, wherein each of the carriers comprise glass or polymeric beads that can be coated with a layer of calcium phosphate-based compound, but does not explicitly teach cell culture carrier comprising a magnetic particle in combination with a polymeric resin material.

The Office Action submits that KITANO discloses, among other things, granular polymer composites comprising polymer beads having partially embedded on the surface thereof a calcium phosphate-based compound, but that the combination of STARLING and KITANO does not explicitly disclose a magnetic particle in combination with a polymeric resin material that can be coated with CaP-based compound.

The Office Action submits that NILSSON discloses, among other things, cell culture carriers comprising a magnetic particle having a surface, and a coating layer of gelatin or chitosan polymers.

In view of the teachings of the cited documents, the rejection asserts that it would have been obvious to incorporate the magnetic particles of NILSSON into the polymeric microbeads or cell culture composition of STARLING taken with KITANO, "such that the cell culture carriers have a magnetic particle having a surface, and a coating layer formed of porous, particulate CaP-based compound so that the cells are allowed to adhere to the surface thereof."

Applicants respectfully request withdrawal of the obviousness rejection of claim 31 for at least the following reasons.

Applicants respectfully submit that a *prima facie* case of obviousness is not established by STARLING taken with KITANO in view of NILSSON for at least the following reasons, which were previously set forth by Applicants. A *prima facie* case of obviousness requires:

- a) the presence of all claimed elements,
- b) the motivation to combine the separate reference teachings, and
- c) a reasonable expectation of success.

The Office Action fails to establish any of these requirements.

First, regarding the presence of all claimed elements, Applicants respectfully submit that the requirement that all claimed elements be taught or suggested in the cited documents has not been met.

For instance, the cited documents fail to disclose or suggest at least at least "a magnetic particle ... formed by compounding a resin material and a magnetic material..." as recited in independent claim 31. Therefore, the requirement that all claimed elements be taught or suggested in the cited documents has not been met, and a *prima facie* case of obviousness has not been established.

Expanding upon the above, Applicants once again refer the Examiner, for example, to Applicants' originally filed specification, at page 5, last paragraph, wherein it is disclosed that:

Further, in this embodiment, it is preferred that each of the magnetic particles is formed by compounding a resin material and a magnetic material. According to this method, it is possible to adjust a density (specific gravity) of the magnetic particle (consequently, the cell culture carrier) by setting compounding ratio (mixing ratio) between the resin material and the magnetic material appropriately. Further, the shape and size of the cell culture carrier can also be adjusted easily.

Still further, reference is once again made to Applicants' originally filed specification beginning at page 36, penultimate for further description of the preferred magnetic particle being formed of a composite material which is obtained by compounding a resin material and a magnetic material.

Applicants further submit that the Office Action fails to provide any sufficient arguments to combine, including why the documents should be combined, to arrive at the presently claimed subject matter.

For example, as once again stated in the Office Action, both of STARLING and KITANO fail to disclose a cell culture carrier comprising a magnetic particle. Moreover, while the Office Action submits that NILSSON discloses magnetic particles, there is no reason to arrive at Applicants' recited subject matter following any combination of the documents utilized in the rejection.

Thus, Applicants respectfully submit that the motivation set forth in the Office Action, *i.e.*, "such that the cell culture carriers have a magnetic particle having a surface, and a coating layer formed of porous, particulate CaP-based compound so that the cells are allowed to adhere to the surface thereof" (Office Action, p. 7), is insufficient motivation to establish a *prima facie* case of obviousness.

In any event, even if for the sake of argument, the disclosures were combined, Applicants' claimed subject matter would not be at hand because no combination of these documents would arrive at granular cell culture carriers to which cells can adhere to and grow on surfaces thereof, wherein each of the carriers comprising a magnetic particle having a base body having a surface, the base body being formed by compounding a resin material and a magnetic material so that the magnetic material is dispersed in the resin material; and a coating layer containing a calcium phosphate-based compound as a main component thereof, the coating layer being provided to cover at least a part of the surface of the base body of the magnetic particle so that the cells can adhere thereto, as recited in independent claim 31.

Moreover, Applicants respectfully once again submit that in order to support the conclusion that the claimed invention is either anticipated or rendered obvious over the cited documents, the cited documents must either expressly or inherently teach the claimed invention or the Examiner must present a convincing line of reasoning why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Ex parte Clapp, 227 U.S.P.Q. 972 (B.O.A. 1985).

The comments in the Office Action do not support the rejection, especially for the reasons which are once again emphasized herein

Still further, the combination claims are patentable over the prior art of record at least for the reasons set forth above as well as for the additional features recited therein. For example, Applicants submit that the combination recited in independent claim 51 and further defined in dependent claims 32-34, 36, 37 and 48-50 and 52-59, provides various combinations that are not taught or suggested by any of the documents utilized in the rejection, whether taken alone or together. Since the cell culture carriers recited in claim 51 are in combination with the cell

culture apparatus having the cell culture vessel and the magnetic filed generator, the cell culture carriers can be uniformly suspended in a culture solution due to the application of the magnetic field, such as disclosed in Applicants' originally filed specification at page 35, second paragraph. Therefore, it becomes easy for cells to adhere to the surfaces of the cell culture carriers, and nutrition can be equally supplied to the cells adhering to the cell culture carriers (see Applicants' specification at page 35, third paragraph). As a result, cells can grow more efficiently (see Applicants' specification at page 36, lines 5-6).

In contrast, Nilsson, Starling and/or Kitano fail to disclose the cell culture carriers and/or the cell culture apparatus as recited in independent claim 51 or further defined in the dependent claims. At most, Nilsson discloses at page 6, lines 24-27, that, "it is conceivable to suspend the beads by applying an outer magnetic filed, thereby minimizing the need for vigorous agitation when using carriers of high specific weight." There is no teaching or suggestion of the advantages associated with Applicants' claimed subject matter and/or providing a combination including the structural features recited in Applicants' claims.

Accordingly, for at least the foregoing reasons, the 35 U.S.C. § 103 rejection of claim 31 over STARLING taken with KITANO in view of NILSSON should be withdrawn.

Response to Obviousness-Type Double Patenting Rejection

The Office Action provisionally rejects claim 31 on the grounds of obviousness-type double patenting as being unpatentable over claim 10 of copending application No. 11/190,868 ("ISHIKAWA")

Applicants respectfully request withdrawal of the obviousness-type double patenting rejection of claim 31 in view of the following remarks.

Applicants respectfully submit that the Office Action does not set forth a sufficient basis for asserting that the claims of the instant application are obvious over the claims of ISHIKAWA. For example, the rejection merely asserts that the claims are co-extensive, but does not indicate the differences between the claims, nor does the rejection include what is considered to be an obvious difference.

Moreover, Applicants note that because the rejection is provisional, the present application can be past to issue, with a double patenting rejection, if deemed appropriate by the Examiner, being made in the other application.

The Examiner is once again requested to contact the undersigned if the only item preventing the allowance of the claims is the filing of a Terminal Disclaimer to overcome the obviousness-type double patenting rejection over Application No. 11/190,868.

Therefore, in view of the foregoing, Applicants respectfully request withdrawal of the obviousness-type double patenting rejection of claim 31.

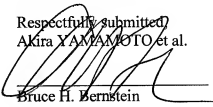
CONCLUSION

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the restriction requirement and the rejections of record, and allow each of the pending claims.

Applicants therefore respectfully requests that an early indication of allowance of the application be indicated by the mailing of the Notices of Allowance and Allowability.

Should the Examiner have any questions regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Akira YAMAMOTO et al.



Bruce H. Bernstein
Reg. No. 29,027

June 10, 2008
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191

Arnold Turk
Reg. No. 33094